

### **AMENDMENT TO THE CLAIMS**

Please amend the claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents, as follows.

#### **In the Claims:**

1. (Currently amended) A method of preparing a titania composite membrane for separating water/alcohol mixtures, the method comprising the steps of:

- (a) modifying macropores of a porous support by sequentially treating the macropores with silica xerogel and  $\gamma$ -alumina sol in this order;
- (b) forming a titania surface layer according to a sol-gel process by coating said modified porous surface with titania sol; and
- (c) drying said membrane at 20-30°C and relative humidity of 50-70% followed by calcining said membrane at 250-400°C

wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m<sup>2</sup>/g, a permeability for water of 25-520 g/m<sup>2</sup>-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250°C.

2. (Original) The method of claim 1, wherein said porous support is a porous metal support having a pore size of 1-5  $\mu$ m.

3. (Original) The method of claim 1, wherein the step (a) comprises a first modification of the macropores of said porous support by packing silica xerogel with a press and a second modification of the surface with  $\gamma$ -alumina sol according to a soaking-rolling process.

4. (Original) The method of claim 1, wherein said titania sol is prepared by refluxing titanium tetraalkoxide in a mixture of water, alcohol and hydrochloric acid.

5. (Original) The method of claim 1, wherein the step (b) is performed by coating the modified surface with titania sol according to a soaking-rolling process.

6. (Cancelled)

7. (Currently amended) The membrane of claim 1 ~~claim 6~~, wherein said permeability for water is 25-420 g/m<sup>2</sup>-h and said selectivity for water is 10-140 in water/ethanol mixtures at 250°C.
8. (Currently amended) The membrane of claim 1 ~~claim 6~~, wherein said permeability for water is 50-520 g/m<sup>2</sup>-h and said selectivity for water of 30-400 in water/propanol mixtures at 250°C.
9. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 2, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m<sup>2</sup>/g, a permeability for water of 25-520 g/m<sup>2</sup>-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
10. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 3, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m<sup>2</sup>/g, a permeability for water of 25-520 g/m<sup>2</sup>-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
11. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 4, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m<sup>2</sup>/g, a permeability for water of 25-520 g/m<sup>2</sup>-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
12. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 5, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m<sup>2</sup>/g, a permeability for water of 25-520 g/m<sup>2</sup>-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.